

Remarks/Arguments:

The applicant addresses the rejections to the application in the order in which they appear in the Office Action.

Drawings

1. Claim 5 has been cancelled. All the claimed features of newly added claims 9-14 are represented in the drawings. The drawings comply with 37 C.F.R. §1.83(a).
2. The applicant has confirmed that all reference numerals in the drawings are adequately disclosed in the specification.

Specification

3. The applicant has added a new paragraph at Amended Sheet page 4, beginning at line 25, to satisfy the requirement for a brief description of the drawings.

Claim Objection

5. Claims 1-8 have been cancelled. The objections to claims 1 and 8 are moot. Claims 9-14 are new. The applicant has incorporated the Examiner's helpful comments regarding claims 1 and 8 into claims 9-14.

Claim Rejections -35 U.S.C. § 112

7. The objection under Section 112, first paragraph, of claim 5 is moot. Claim 5 is cancelled.
9. The objections under Section 112, second paragraph, of claims 1-8 are moot. Claims 1-8 are cancelled. The applicant has considered the Examiner's rejections as they apply to new claims 9-14.

More specifically, new claim 9 recites "A diesel engine comprising an exhaust system, which exhaust system comprises ..." rather than "A diesel engine provided with an exhaust system comprising..." and all dependent claims now refer to "An engine..." in place of "A system..." Claim 9 also recites "the EGR intake," which now has proper antecedent basis, rather than reciting "the portion of the recirculated exhaust gas".

Claim 10 refers to "a portion of the exhaust gas passes through the particulate trap and does not pass to the engine intake" in place of "all of the remainder of the un-recirculated exhaust gas."

Claim 12 recites the word "is," making it clear that the 5 to 30% by volume limitation is a feature of the claimed invention.

Claim 13 requires "a cooler for cooling gases to be recirculated in the EGR system" rather than "a cooler for the recirculated gases." Claim 12 also structurally defines the position of the EGR valve.

Claim 14 requires "...recycling a portion of the gas that passed through the oxidation catalyst to an engine intake ..." in place of "...taking a portion of the resulting gas from the resulting gas stream and recycling said portion to the engine intake..." Additionally "...the point of taking said portion of the resulting gas and oxidising the particulates by reaction..." has been replaced with "...and trapping particulates in a filter mounted downstream of where the portion of the exhaust gas is recycled; and oxidising the particulates trapped in the filter by reaction with at least some of the NO₂ generated in said passing step."

Claim Rejections 35 U.S.C. § 103(a)

13. The Office Action rejects claims 1-8 under 35 U.S.C. §103(a) as unpatentable over Allansson (U.S. Patent No. 6,427,436) in view of Paas (5,785,030). More specifically, the rejection alleges that Allansson discloses all of the claimed features in claims except for locating the particulate trap downstream of the EGR system intake. Paas is cited as disclosing a particulate trap located downstream of the EGR system intake. The motivation to re-arrange the components in Allansson in view of Paas is because such a re-arrangement is no more than an obvious design choice, "and well within the knowledge of one skilled in the art so as to prevent soot dust from being stuck and deposited in the air intake port thereof."

Although claims 1-8 are cancelled, the applicant addresses the rejection with respect to new claims 9-14.

The applicant submits the Examiner's rejection if applied to the subject matter of pending claims 9-14 would be in error for at least three reasons: i) the applicant finds no teaching in Paas "to prevent soot dust from being stuck and deposited in the air intake port

thereof;" ii) Paas does not teach the previously quoted conclusion because Paas fails to disclose or suggest locating the particulate trap downstream of the EGR system intake, and iii) because Paas fails to supply the motivation to rearrange the engine system, the Office Action relies on the incorrect and improperly drawn assertion that such an arrangement is a matter of design choice and would be well within the knowledge of one skilled in the art.

- i) The applicant finds no teaching in Paas "to prevent soot dust from being stuck and deposited in the air intake port thereof"

The applicant finds no teaching in Paas that would lead one of ordinary skill in the art to draw the above-quoted conclusion set forth in the Office Action. The applicant requests that the Examiner specifically point out such a teaching in Paas, if available. The applicant asserts that such a teaching in Paas does not exist because Paas fails to disclose a particulate trap downstream of the EGR system intake.

- ii) Paas fails to disclose or suggest locating the particulate trap downstream of the EGR system intake

Paas does not teach the feature of locating a particulate trap downstream of an EGR system intake or provides motivation to have such an arrangement. In fact, Paas teaches away from such an arrangement. Paas states that the exhaust gases are cooled then filtered prior to being directed to the EGR system intake (column 2, lines 53 – 59 and column 4, lines 53 – 58). In Figures 1 and 3 of Paas, reference numeral 20 is a filter and reference numeral 86 is the intake for the EGR system (see column 7, line 66 – column 8, line 4). In Figure 4, the filter is 120 and the EGR system intake is 186. In Figure 5, it is the applicant's position that filter 220 is the box to the right of reference numeral "283", i.e., the filter 220 is upstream of the valve for the EGR system 214. Therefore, Paas does not disclose or suggest an arrangement where the particulate trap is located downstream of the EGR system intake.

Section 2143.03 of the MPEP provides that to establish a *prima facie* case for obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981 (CCPA 1974). The Office Action acknowledges that the cited art fails to disclose each and every feature of the present invention. At page 7 of the Office Action, the rejection states that "the method of Allansson is substantially the same as that of the instant claims, but fails to disclose whether the filter may be mounted downstream of the EGR system intake. The same comments with respect to Paas apply." The applicant reads this statement as an acknowledgement by the Office Action that neither of the cited

references, alone or in combination, disclose or suggest all of the features of the claimed invention. Thus, this rejection is in error.

- iii) The Office Action relies on the incorrect and improperly drawn assertion that the claimed arrangement is a matter of design choice and would be well within the knowledge of one skilled in the art

As argued above, the motivation of preventing soot dust from being stuck and deposited in the air intake port of the EGR system is not found in Paas because Paas fails to disclose a particulate trap disposed downstream of an EGR system intake. Therefore, the Office Action relies on the knowledge of one skilled in the art to supply that missing limitation. The Office Action incorrectly and improperly asserts that the claimed arrangement is a matter of design choice and would be well within the knowledge of one skilled in the art.

A rejection based upon the motivation that an arrangement of parts is a matter of design choice of what is known can only be made when the change in design does not modify the operation of the device. See *In re Japikse*, 181 F.2d 1019 (CCPA 1950) (Claims to a hydraulic power press which read on the prior art except with regard to the position of the starting switch were held unpatentable because shifting the position of the starting switch would not have modified the operation of the device.). "The mere fact that a worker in the art could rearrange the parts of the reference device to meet the terms of the claims on appeal is not by itself sufficient to support a finding of obviousness. The prior art must provide a motivation or reason for the worker in the art, without the benefit of appellant's specification, to make the necessary changes in the reference device." *Ex parte Chicago Rawhide Mfg. Co.*, 223 USPQ 351, 353 (Bd. Pat. App. & Inter. 1984). The applicant asserts that rearranging the system of Allansson modifies the operation of the engine system in Allansson, that no motivation to do so exists in the references themselves, and that the Office Action is using the applicant's own disclosure to manipulate the references in order to reject the subject matter of the claimed invention. The Office Action rejection is therefore improper.

The Office Action also asserts that such a change in arrangement would be well within the knowledge of one skilled in the art. MPEP § 2143.01 provides that a statement that modifications of the prior art to meet the claimed invention would have been "well within the ordinary skill of the art" at the time the claimed invention was made" because the references relied upon teach that all aspects of the claimed invention were individually known in the art is not sufficient to establish a *prima facie* case of obviousness without some objective reason to

combine the teachings of the references. *Ex parte Levengood*, 28 USPQ2d 1300 (Bd. Pat. App. & Inter. 1993). For this additional reason, the Office Action has failed to provide proper motivation to modify Allansson in view of Paas. Claims 9-14 are thus in a condition for allowance.

14. The Office Action rejects claims 1-8 under 35 U.S.C. §103(a) as unpatentable over JP 08-338320 or JP 09-88727 of JP 06-066208 in view of Allansson. More specifically, the Japanese reference are cited as discloses the claimed invention but for the arrangement that the EGR system intake may be mounted downstream of the oxidation catalyst. Allansson is cited as disclosing an EGR system mounted downstream of the oxidation catalyst.

Although claims 1-8 are cancelled, the applicant addresses the rejection with respect to new claims 9-14.

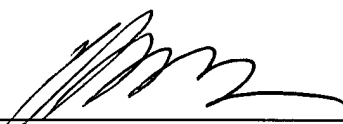
The Japanese documents are cited as disclosing an oxidation catalyst, a particulate trap and an EGR system intake. None of theses references, however, disclose the claimed features of "wherein the EGR system in take is located downstream of the oxidation catalyst and the particulate trap is located downstream of the EGR system intake." Allansson fails to fill the void left by the Japanese references. The combination of Allansson et al. and any of the Japanese citations fails to teach or suggest all the claim limitations. Pending claims 9-14 are therefore in a condition for allowance.

Moreover, as discussed in the specification of the present application (see page 2, lines 3-8 and page 2, lines 18-27) JP 08-338320 and JP 09-088727 are not suited to heavy duty diesel applications. JP 09-088727 discloses the use of a cooler downstream of the EGR control valve, whilst JP 08-338320 makes no mention of a cooler. Both JP 08-338320 and JP 09-088727 also disclose that the EGR control valve is upstream of the catalyst and particulate filter. Under the higher operating temperatures associated with heavy duty diesel applications this means that the EGR valve is exposed to caustic and sticky "wet" particulate matter comprising solid carbon soaked in a volatile organic fraction. Such "wet" particulate matter promotes excessive valve wear and malfunction, increasing maintenance and reducing valve life.

IV. Conclusion

The applicant asserts that the rejection of cancelled claims 1-8, if applied to claims 9-14, fails to render claims 9-14 obvious. The combination of references set forth in the Office Action rejections fails to teach the specific arrangement of the claimed invention. The knowledge of one of ordinary skill in the art cannot be used to supply that missing limitation. Pending claims 9-14 are in a condition for allowance. Early notice to that effect is earnestly appreciated.

Respectfully submitted,



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